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REMARKS

Applicant concurrently files herewith a petition and fee for a two-month extension of time.

Claims 1-2, 4-8, 13 and 18-21 are all the claims presently pending in the application. Claims 3, 9-12 and 14 have been canceled. Claims 1-2, 4-6, 8 and 13 have been amended to more particularly define the invention. Claims 18-21 have been added to claim additional features of the claimed invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1, 3, 5 and 13 stand rejected under 35 U.S.C. 102(e) as being anticipated by Sonoda, et al. (USPN 6,433,852). Claims 1, 3 and 4 stand rejected under 35 U.S.C. 102(e) as being anticipated by Kishimoto, et al. (USPN 6,072,557). Claims 1-6 and 8-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kazunari (JP 08-179330), further in view of Masanobu, et al. (JP 11-174466).

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention (as recited in claim 1) is directed to a liquid crystal display (LCD) including a first substrate, a second substrate opposing to said first substrate, a liquid

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crystal layer sandwiched between said first and second substrate, at least one pixel electrode and at least one common electrode formed on said first substrate, at least one spacer which is positioned under an opaque region; and at least one projection which is formed on said common electrode.

Conventional liquid crystal displays are typically formed such that a spacer positioned within a opaque region can easily migrate to a transparent region, for example, when the LCD panel is impacted (Application at page 6, lines 11-13). As a result, an increase in leakage of light around the spacer becomes noticeable (Application at page 6, lines 16-19).

The claimed invention, on the other hand, includes at least one projection which is formed on said common electrode (Application at page 7, lines 1-8; Figure 8-9). The projection can prevent any spacer positioned within the light shielded regions of the liquid crystal from entering the transparent region (Application at page 10, lines 7-16). As a result, the leakage of light decreases and the contrast is improved (Application at page 13, lines 19-24).

II. THE PRIOR ART REFERENCES

A. The Sonoda and Kishimoto References

The Examiner alleges that Sonoda teaches the claimed invention of claims 1, 3, 5 and 13, and that Kishimoto teaches the claimed invention of claims 1, 3 and 4. Applicant respectfully submits that there are elements of the claimed invention which are neither taught nor suggested by Sonoda or Kishimoto.

Applicant notes that Sonoda has a U. S. filing date of December 3, 1999 and that

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Kishimoto has a U. S. filing date of July 30, 1999. The present Application, however, has a priority date of March 11, 1999 which is before the U. S. filing date of the Sonoda patent and the U. S. filing date of the Kishimoto patent.

Therefore, Applicant submits that neither the Sonoda patent nor the Kishimoto patent are prior art against the claimed invention. Applicant notes that a Verified Translation of the Priority Document is being prepared and will be imminently filed herein.

Therefore, the Examiner is respectfully requested to withdraw this rejection.

B. The Kazunari and Masanobu References

The Examiner alleges that Kazunari would have been combined with Masanobu to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

Kazunari discloses an active matrix LCD which allegedly includes a construction for preventing spacer movement, which is attached to one or both of a thin film transistor (TFT) and/or a color filter (Kazunari at Abstract; Figure 2).

Masanobu discloses an LCD which allegedly has a construction which prevents the movement of a spacer by attaching a convex part to the pixel (Masanobu at Abstract).

However, Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, these references are directed to different problems and solutions.

Specifically, Kazunari is directed to an LCD in which a construction for preventing a

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spacer movement is attached to a TFT substrate or a color filter, whereas Masanobu is directed to an LCD in which a convex part is attached to the pixel. Certainly, no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

Further, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. Indeed, the Examiner merely states that it would have been obvious to combine these references so that movement of the spacer is prevented and thus damage to the orientation film is prevented. However, the Examiner's stated motivation to combine is unrelated to at least one objective of the claimed invention (e.g., preventing a movement of the spacer to prevent light leakage around the spacer) and, therefore, is insufficient to support the alleged combination.

Moreover, neither Kazunari nor Masanobu teach or suggest "*at least one projection which is formed on said common electrode*" as recited, for example, in claim 1. As noted above, unlike conventional liquid crystal displays which allow a spacer positioned within a opaque region to easily migrate to a transparent region, the claimed invention, includes at least one projection which is formed on said common electrode (Application at page 7, lines 1-8; Figure 8-9).

This feature is important because it can prevent any spacer positioned within the light shielded regions of the liquid crystal from entering the transparent region (Application at page 10, lines 7-16). As a result, the leakage of light decreases and the contrast is improved (Application at page 13, lines 19-24).

Clearly, neither of the cited references teaches or suggests this novel feature. Indeed,

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as noted above, Masanobu discloses an LCD wherein projections (201, 202) are formed under an opaque region (103). In the claimed invention, on the other hand, the projection may be formed on the common electrode. This is disclosed, for example, at page 10, lines 17-19 of the present Application.

Moreover, in the claimed invention, the common electrodes may be formed on the first substrate having pixel electrodes. Both Kazunari and Masanobu, on the other hand, disclose LCDs having a common electrode formed on the second substrate opposing to the first substrate provided pixel electrodes. Therefore, the claimed invention clearly differs from the devices disclosed by Masanobu and Kazunari.

Moreover, neither Masanobu nor Kazunari teach or suggest a projection formed on a common electrode which is formed on the first substrate having pixel electrodes. Therefore, Masanobu clearly does not make up for the deficiencies of Kazunari.

Therefore, Applicant respectfully submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-2, 4-8, 13 and 18-21, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

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Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 5/27/03



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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing Amendment was filed by facsimile with the United States Patent and Trademark Office, Examiner T. R. Chowdhury, Group Art Unit # 2871 at fax number (703)872-9318 this 27th day of May, 2003.



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please cancel claims 3, 9-12 and 14 without prejudice or disclaimer.

Please amend the claims to read as follows:

1. (Amended) A liquid crystal display (LCD) comprising:
a first substrate;
a second substrate opposing to said first substrate;
a liquid crystal layer sandwiched between said first and second substrate;
at least one pixel electrode and at least one common electrode formed on said first
substrate;
at least one spacer [(17)] which is positioned under an opaque region [(9),] and
at least one projection [(6, 19)] which is formed [under the] on said common electrode
[opaque region (9), and on at least one of the inner-most surfaces of a first and a second
substrate].
2. (Amended) The LCD[,] according to claim 1, wherein the said projection [(6, 19)] is
formed [under the said opaque region (9), and on at least one of the inner-most surfaces of the
said first substrate and the second substrate,] in a format of creating a wall around a
transparent region so that [the] said at least one spacer provided on said common electrode
[(17)] can not enter [the] said transparent region.
4. (Amended) The LCD[,] according to claim 1, wherein the height of [the] said
projection [(6, 19)] is equal to or longer than approximately 1 % the length of the diameter of
[the] said spacer [(17)].
5. (Amended) The LCD[,] according to claim 1, wherein the width of [the] said
projection [(6, 19)] is equal to or shorter than the diameter of [the] said spacer [(17)].
6. (Amended) The LCD[,] according to claim 1, wherein [the] said projection [(6, 19)] is

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formed by structuring a bumpy layer under an alignment layer [(15, 16)].

8. (Amended) The LCD[,] according to claim 1, wherein one of [the] said at least one projection [(6)] formed on the inner-most surface of [the] said first substrate faces another one of [the] said at least one projection [(19)] formed on the inner-most surface of [the] said second substrate.

13. (Amended) The LCD[,] according to claim 1, wherein the space between [the] said two substrates is filled with liquid crystal molecules, to which a lateral electric field between said pixel electrode and said common electrode is applied so as to rotate [the] said liquid crystal molecules.

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